

In the Claims:

Please amend the claims as follows:

**Claims****What is claimed is:**

1. (Currently Amended) ~~Apparatus or arrangement~~ An apparatus with a heat source ~~(1) consisting for example of~~ comprising at least one electric or electronic component ~~or comprising one such component,~~ with a heat sink ~~(2)~~ and with an intermediate layer ~~(3)~~ made of a thermally conductive material provided between the heat source and the heat sink, ~~characterized in that~~ wherein the intermediate layer ~~(3)~~ consists of an organic matrix with embedded nanofibers, the length of at least a majority of the nanofibers embedded in the organic matrix is between 1-100µm and that wherein the heat source ~~(1)~~ and the heat sink ~~(2)~~ bear with thermally conductive surfaces ~~(1.1, 2.1)~~ against the intermediate layer ~~(3)~~ with a surface pressure between approximately 0.1 and 100 bar.
2. (Currently Amended) ~~Apparatus~~ The apparatus according to claim 1, ~~characterized in that~~ wherein the organic matrix, at least at the operating temperature of the apparatus or of the heat source ~~(1)~~, is in a viscous or liquid state, ~~for example or~~ a semi-liquid state.
3. (Currently Amended) ~~Apparatus~~ The apparatus according to claim ~~1 or 2,~~ characterized in that wherein the organic matrix is already in the viscous or liquid state at ~~room temperature, i.e. at a temperature between 10 and 30°C.~~
4. (Currently Amended) ~~Apparatus~~ The apparatus according to claim 2, ~~characterized in that~~ wherein the organic matrix is in the viscous or liquid state at a temperature higher than 30°C, ~~for example or~~ at a temperature between 40 and 80°C.

5. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the foregoing claims, characterized in that claim 1,~~ wherein the organic matrix contains at least one oil, ~~for example such as a synthetic oil, such as or a~~ silicone oil.
6. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the foregoing claims, characterized in that claim 1,~~ wherein the organic matrix contains at least partially an elastomer, ~~for example such as a completely or only partially cross-linked elastomer, e.g. or a~~ synthetic elastomer ~~such as , or~~ silicone rubber.
7. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the foregoing claims, characterized in that claim 1,~~ wherein the organic matrix is at least partially a polymer, e.g. a polycarbonate, a polypropylene or a polyethylene.
8. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the foregoing claims, characterized in that claim 1,~~ wherein the percentage of nanofibers in the matrix is between 1 and 70 percent by weight in relation to the total mass of the intermediate layer (3), ~~preferably between 5 and 20 percent by weight.~~
9. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the foregoing claims, characterized in that claim 1,~~ wherein the nanofibers have a thickness between approximately 1.3 nm and 300 nm, where the length/thickness ratio of a majority of the nanofibers embedded in the organic matrix is greater than 10.
10. (Cancelled)

11. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the foregoing claims, characterized in that claim 1,~~ wherein the thickness of the intermediate layer ~~(3)~~ is between 0.01 mm and 0.5 mm.
12. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the foregoing claims, characterized in that claim 1,~~ wherein at least part of the nanofibers are made of carbon, boron nitride, or tungsten carbide.
13. (Cancelled)
14. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the foregoing claims, characterized in that claim 1,~~ wherein the nanofibers ~~(8)~~ in the organic matrix are oriented in a random and/or tangled configuration.
15. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the foregoing claims, characterized in that claim 1,~~ wherein the nanofibers ~~(8)~~ in the organic matrix at least for the most part are oriented in the same direction longitudinally, ~~for example~~ perpendicular or crosswise to the adjacent heat transfer surfaces ~~(1.1, 2.1)~~ or parallel or approximately parallel to the heat transfer surfaces ~~(1.1, 2.1)~~.
16. (Currently Amended) ~~Apparatus~~ The apparatus according to claim 15, ~~characterized by further comprising~~ means ~~(9)~~ for orienting and/or maintaining the orientation of the nanofibers in the organic matrix, ~~for example~~ by means for creating an electric field intensity in the organic matrix.
17. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the foregoing claims, characterized in that claim 1,~~ wherein at least part of the nanofibers embedded in the

organic matrix form a two-dimensional or three-dimensional structure, in which the nanofibers are linked with each other, ~~for example~~ in the form of a web or web-like structure, a non-woven material structure and/or a network or screen-like structure.

18. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the foregoing claims, characterized in that~~ claim 1, wherein the organic matrix contains further components or additives, ~~for example~~ in a percentage that is lower than the percentage of nanofibers.
19. (Currently Amended) ~~Apparatus~~ The apparatus according to claim 18, ~~characterized in that~~ wherein the organic matrix contains at least one thermally conductive ceramic in the form of fine particles or powder as an additive, ~~for example~~ selected from  $\text{Al}_2\text{O}_3$ ,  $\text{AlN}$ ,  $\text{BN}$ ,  $\text{Si}_3\text{N}_4$ ,  $\text{SiC}$ ,  $\text{BeO}$ ,  $\text{ZrO}$ .
20. (Currently Amended) ~~Apparatus~~ The apparatus according to claim 18 ~~or 19, characterized in that,~~ wherein the organic matrix contains as an additive at least one metal and/or metal compound and/or metal alloy in the form of fine particles or powder, ~~for example~~ selected from silver, copper or gold.
21. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the claims 18 — 20, characterized in that~~ claim 18, wherein the matrix contains as an additive, in the form of fine particles or powder, at least one material and/or material compound and/or alloy that is heat-conductive and changes to molten state at temperatures above  $50^\circ\text{C}$ .
22. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the foregoing claims, characterized in that~~ claim 1,

wherein at least part of the nanofibers are nanotubes, for example single-walled and/or double-walled nanotubes.

23. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the foregoing claims, characterized in that claim 1,~~ wherein at least part of the nanofibers are coated with at least one metal.
24. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the foregoing claims, characterized in that claim 1,~~ wherein the nanofibers made of carbon are such nanofibers that were subjected to a heat treatment or graphitization step at a temperature between 2700 - 3100°C before being embedded in the organic matrix.
25. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the foregoing claims, characterized in that claim 1,~~ wherein the heat source (1) is formed by at least one electronic component, ~~e.g. such as diode, semiconductor switch or control element (transistor, mosfet)~~ , a transistor, a mosfet or by an integrated component.
26. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the foregoing claims, characterized in that claim 1,~~ wherein the heat source (1) is formed by at least one circuit or module with at least one electric or electronic component (24), which is located on a metal-ceramic substrate (22) manufactured using the DCB process or active soldering process, wherein the intermediate layer (3) is located between one metallization (22.3) of the substrate and one heat transfer surface (2.1) adjacent to said metallization.
27. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the foregoing claims, characterized in that claim 1,~~

wherein the heat source (1) is formed by a microprocessor, at least one laser diode or one laser diode bar.

28. (Cancelled)
29. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the foregoing claims, characterized in that~~ claim 1, wherein the heat sink (2) is formed by a passive cooler (10) with cooling fins, cooling pins or similar structures.
30. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the foregoing claims, characterized in that~~ claim 1, wherein the heat sink (2) comprises at least one active cooler (12) through which a coolant, ~~for example water,~~ circulates.
31. (Currently Amended) ~~Apparatus~~ The apparatus according to claim 30, ~~characterized in that~~ the at least one cooler (12) is part of a coolant circulation system.
32. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~one of the foregoing claims, characterized in that~~ claim 1, wherein the heat sink comprises at least one heat pipe (17, 20) and that the intermediate layer (3) is provided at least between the heat source (1) and one cooling surface formed by the heat pipe.
33. (Currently Amended) ~~Apparatus~~ The apparatus according to claim 32, ~~characterized in that~~ wherein one cooler or heat exchanger (18, 21) is provided on the heat pipe, wherein ~~preferably~~ at least one intermediate layer is provided between the heat pipe and this heat exchanger or cooler.

34. (Currently Amended) ~~Apparatus~~ The apparatus according to claim 32 ~~or 33, characterized in that,~~ wherein the heat pipe ~~(17)~~ functions as a heat pump or heat spreader.
35. (Cancelled)
36. (Currently Amended) ~~Thermally~~ A thermally conductive mass, e.g. ~~thermally conductive paste,~~ for forming an intermediate layer ~~(3)~~ between a heat source ~~(1)~~ and a heat sink ~~(2),~~ characterized in that, wherein the mass consists of an organic matrix with embedded nanofibers and the length of at least for a majority of the nanofibers embedded in the organic matrix is between 1-100  $\mu$ m.
37. (Currently Amended) ~~Thermally~~ The thermally conductive mass according to claim 36, ~~characterized in that~~ wherein the organic matrix, at least at the operating temperature of the apparatus or of the heat source ~~(1)~~, is in a viscous or liquid state, ~~for example or~~ a semi-liquid state.
38. (Currently Amended) ~~Thermally~~ The thermally conductive mass according to claim 36 ~~or 37, characterized in that,~~ wherein the organic matrix is already in the viscous or liquid state ~~at room temperature, i.e. at a temperature between 10 and 30°C.~~
39. (Currently Amended) ~~Thermally~~ The thermally conductive mass according to claim ~~38,~~ characterized in that 36, wherein the organic matrix is in the viscous or liquid state at a temperature ~~higher than 30°C, for example at a temperature between 40 and 80°C.~~
40. (Currently Amended) ~~Thermally~~ The thermally conductive mass according to ~~one of the foregoing claims, characterized in that~~ claim 36, wherein the organic matrix contains at least



one oil, ~~for example~~ a synthetic oil, ~~such as~~ or a silicone oil.

41. (Currently Amended) ~~Thermally~~ The thermally conductive mass according to ~~one of the foregoing claims, characterized in that~~ claim 36, wherein the organic matrix contains at least partially an elastomer, ~~for example~~ a completely or only partially cross-linked elastomer, ~~e.g.~~ a synthetic elastomer ~~such as~~ or a silicone rubber.
42. (Currently Amended) ~~Thermally~~ The thermally conductive mass according to ~~one of the foregoing claims, characterized in that~~ claim 36, wherein the organic matrix is at least partially a polymer, ~~e.g.~~ selected from polycarbonate, polypropylene or polyethylene.
43. (Currently Amended) ~~Thermally~~ The thermally conductive mass according to ~~one of the foregoing claims, characterized in that~~ claim 36, wherein the percentage of nanofibers in the matrix is between 1 and 70 percent by weight in relation to the total mass of the intermediate layer (3), ~~preferably between 5 and 20 percent by weight.~~
44. (Currently Amended) ~~Thermally~~ The thermally conductive mass according to ~~one of the foregoing claims, characterized in that~~ claim 36, wherein the nanofibers have a thickness between approximately 1.3 nm and 300 nm, where the length/thickness ratio of a majority of the nanofibers embedded in the organic matrix is greater than 10.
45. (Cancelled)
46. (Currently Amended) ~~Thermally~~ The thermally conductive mass according to ~~one of the foregoing claims, characterized in~~

~~that~~ claim 36, wherein the thickness of the intermediate layer (3) is between 0.01 mm and 0.5 mm.

47. (Currently Amended) ~~Thermally~~ The thermally conductive mass according to ~~one of the foregoing claims, characterized in that~~ claim 36, wherein at least part of the nanofibers are made of carbon, boron nitride and/or tungsten carbide.
48. (Cancelled)
49. (Currently Amended) ~~Thermally~~ The thermally conductive mass according to ~~one of the foregoing claims, characterized in that~~ claim 36, wherein the nanofibers (8) in the organic matrix are oriented in a random and/or tangled configuration.
50. (Currently Amended) ~~Thermally~~ The thermally conductive mass according to ~~one of the foregoing claims, characterized in that~~ claim 36, wherein the nanofibers (8) in the organic matrix at least for the most part are oriented in the same direction longitudinally, for example perpendicular or crosswise to the adjacent heat transfer surfaces (1.1, 2.1) or parallel or approximately parallel to the heat transfer surfaces (1.1, 2.1).
51. (Currently Amended) ~~Thermally~~ The thermally conductive mass according to ~~one of the foregoing claims, characterized in that~~ claim 36, wherein at least part of the nanofibers embedded in the organic matrix form a two-dimensional or three-dimensional structure, in which the nanofibers are linked with each other, for example in the form of a web or web-like structure, a non-woven material structure and/or a network or screen-like structure.

52. (Currently Amended) ~~Thermally~~ The thermally conductive mass according to ~~one of the foregoing claims, characterized in that~~ claim 36, wherein the organic matrix contains further components or additives, ~~for example~~ in a percentage that is lower than the percentage of nanofibers.
53. (Currently Amended) ~~Thermally~~ The thermally conductive mass according to claim 52, ~~characterized in that~~ wherein the organic matrix contains as an additive at least one thermally conductive ceramic in the form of fine particles or powder, ~~for example~~ selected from  $\text{Al}_2\text{O}_3$ ,  $\text{AlN}$ ,  $\text{BN}$ ,  $\text{Si}_3\text{N}_4$ ,  $\text{SiC}$ ,  $\text{BeO}$ ,  $\text{ZrO}$ .
54. (Currently Amended) ~~Thermally~~ The thermally conductive mass according to claim 52 ~~or 53, characterized in that,~~ wherein the organic matrix contains as an additive at least one metal and/or metal compound and/or metal alloy in the form of fine particles or powder, ~~for example~~ such as silver, copper or gold.
55. (Currently Amended) ~~Thermally~~ The thermally conductive mass according to ~~one of the claims 52 — 54, characterized in that~~ claim 52, wherein the matrix contains as an additive, in the form of fine particles or powder, at least one material and/or material compound and/or alloy that is heat-conductive and changes to molten state at temperatures above  $50^\circ\text{C}$ .
56. (Currently Amended) ~~Thermally~~ The thermally conductive mass according to ~~one of the foregoing claims, characterized in that~~ claim 36, wherein at least part of the nanofibers are nanotubes, ~~for example~~ single-walled and/or double-walled nanotubes.

57. (Currently Amended) ~~Thermally~~ The thermally conductive mass according to ~~one of the foregoing claims, characterized in that~~ claim 36, wherein at least part of the nanofibers are coated with at least one metal.
58. (Currently Amended) ~~Thermally~~ The thermally conductive mass according to ~~one of the foregoing claims, characterized in that~~ claim 36, wherein the nanofibers made of carbon are such nanofibers that were subjected to a heat treatment or graphitization step at a temperature between 2700 - 3100°C before being embedded in the organic matrix.